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September 4, 1996

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FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF SECRETARY

Mr. William F. Caton  
Secretary  
Federal Communications Commission  
1919 M Street, N.W.  
Room 222  
Washington, D.C. 20554

Re: CC Docket No. 92-297,  
FOURTH NOTICE OF PROPOSED RULE MAKING

Dear Mr. Caton:

In accordance with Section 1.1206(a) of the Rules of the Federal Communications Commission ("Commission"), 47 C.F.R. § 1.1206(a), this is to notify the Commission that on September 4, 1996, the undersigned, on behalf of the Department of Transportation of the State of Nevada ("Nevada DOT") and Barton-Aschman Associates, Inc. ("Barton-Aschman"), met with Robert James, Assistant for Microwave Services at the Wireless Telecommunications Bureau's Private Wireless Division.

The purpose of this meeting was to discuss the Commission's proposal to reallocate the 31.0-31.3 GHz band to Local Multipoint Distribution Service on a primary, protected basis. The subjects discussed are fully reflected in the enclosed letter, which was left with Mr. James.

Should you have any questions regarding this matter, please contact me.

Respectfully submitted,

*Nicole B. Donath*

Nicole B. Donath

cc: Ms. Michele C. Farquhar  
Mr. Robert James

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STATE OF NEVADA  
DEPARTMENT OF TRANSPORTATION  
1263 S. Stewart Street  
Carson City, Nevada 89712

BOB MILLER, Governor

TOM STEPHENS, P.E., Director

August 30, 1996

In Reply Refer to:

Mr. William F. Caton  
Acting Secretary  
Federal Communications Commission  
1919 M Street, N.W.  
Washington, D.C. 20554

CC Docket No. 92-297  
In the Matter of Rule Making to Amend Parts 1, 12,  
21, and 25 of the Commission's Rules to  
Redesignate the 27.5-29.5 GHz Frequency Band, to  
Reallocate the 29.5-30.0 GHz Frequency Band, to  
Establish Rules and Policies for Local Multipoint,  
Distribution Service and for Fixed Satellite Service  
**FOURTH NOTICE OF PROPOSED RULE  
MAKING**

Dear Mr. Caton:

Pursuant to Section 1.1206(a) of the Rules of the Federal Communications Commission ("Commission"), the Department of Transportation of the State of Nevada ("Nevada DOT"), joined by Barton-Aschman Associates, Inc. ("Barton-Aschman"), respectfully submits the following ex parte comments regarding the Fourth Notice of Proposed Rule Making adopted by the Commission in the above-captioned proceeding on July 17, 1996. The undersigned strongly urge the Commission to reassess its proposed reallocation of the 31.0-31.3 GHz ("31 GHz") band to Local Multipoint Distribution Service ("LMDS") for use on a primary, protected basis in light of the potential disruption to critical traffic signal control systems that are authorized to operate in this 31 GHz spectrum.

**STATEMENT OF INTEREST**

The Nevada DOT recently obtained authority to operate Private Operational-Fixed Microwave Service facilities in the 13 GHz and 18 GHz bands to transport video images of conditions of traffic signal controlled intersections throughout the Las Vegas area. Approximately 11 microwave links have been implemented thus far as part of this backbone system. Because the system uses ring topology to provide built-in redundancy, the available frequencies have been divided into two sub-bands: one for the clockwise ring, and one for the counterclockwise ring. Barton-Aschman, system consultants to the Nevada DOT, have designed a distributed communication system to provide for traffic signal system operations. Barton-Aschman has determined that microwave links operating in the 31 GHz band will be necessary in order to extend the existing twisted wire pair substructure to transmit video information from remote to hub sites for ultimate delivery to the traffic management control centers. Accordingly, efforts to develop, license and operate 31 GHz extensions as an integral part of the Nevada DOT's traffic signal control system have been underway for several months.

The Las Vegas Area Computer Traffic System ("LVACTS"), established in 1983, was the first multi-jurisdictional traffic signal control system in the United States. The jurisdictions which the metropolitan Las Vegas area include are the City of Las Vegas, the City of North Las Vegas, the City of Henderson, Clark County and the Nevada Department of Transportation. For several years, the initial LVACTS system provided effective coordination between traffic signals along major Las Vegas streets. However, an increase in the population of the Las Vegas valley over the past twelve years from fewer than 300,000 to over 1,000,000<sup>1</sup> has resulted in a massive increase in traffic demand, with a corresponding explosive growth in traffic congestion and vehicle emission. In light of this tremendous population growth, as well as limitations on the capacity of the initial LVACTS equipment and dramatic improvements in technology during the last decade, the Nevada DOT has found it both necessary and feasible to replace its outdated traffic system with the extensive network described above.

A cornerstone of the new system is that it allows a small number of system operators to view traffic operations effectively at many critical locations. For this reason, the new signal system includes a large video surveillance component. Specifically, the system will feed images from 47 video surveillance cameras distributed throughout the area to 28 display monitors at various traffic management centers. The transmission of video images over microwave links that employ 31 GHz channels is an essential part of this system. Because cameras will be located at high volume arteries and near freeway interchanges, this surveillance capability could enhance public safety through quicker response times when life-threatening incidents are observed by signal system operators.

In addition, traffic signal timing optimization mitigates unnecessary motorist delays, stops, travel time, fuel consumption and vehicle emissions. In a pilot study conducted at several Las Vegas intersections, analysts showed that reductions in carbon monoxide emissions of greater than 15% are possible with proper signal timing. When extrapolated over the whole network, these results indicate that the improved traffic flow efficiency provided by the Nevada DOT's new traffic control system would reduce carbon monoxide emissions in Las Vegas by 580,000 kilograms (638 tons) per year. This study also demonstrates that vehicle stopped time could be reduced by 2,650,000 hours per year and predicted an annual fuel consumption decrease of over 11,000,000 gallons. While Las Vegas's new traffic management system likely will cost approximately \$11,000,000, its anticipated total value to the public over a ten-year life span has been estimated at over \$250,000,000.

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<sup>1</sup>In fact, Las Vegas has been the fastest growing metropolitan region in the Country during this time period.

The Nevada DOT and Barton-Aschman are concerned that the Commission's proposed allocation of the 31 GHz band to LMDS on a primary basis will threaten the viability of the new LVACTS network. In particular, we fear that our system operators' reception of video surveillance signals will degrade significantly upon the deployment of LMDS in the 31 GHz band. This, in turn, would deprive residents and visitors to the Las Vegas area of the overwhelming public benefits described above. Further, because significant amounts of public funds already have been expended on the development of 31 GHz technology and equipment, we do not believe that the Commission's suggested relocation of traffic signal management operations to the 23 GHz band is an appropriate alternative.<sup>2</sup>

The undersigned also respectfully dispute the contention of the Commission and certain proponents of LMDS that traffic signal control operators in the 31 GHz band have no right to protection from harmful interference and may be expelled from the 31 GHz band without compensation.<sup>3</sup> The fact that incumbent 31 GHz licensees lack primary or protected status does not justify their potential exposure to harmful interference that they could not have contemplated when they initially selected the 31 GHz band. As other commentors have explained, these licensees initiated 31 GHz operations with the Commission's express encouragement and in reliance upon the continued applicability of technical limitations that provide them with effective protection against disruptive interference from other authorized spectrum users.<sup>4</sup> Under the circumstances, the Commission must look beyond technical interference provisions and consider the public benefits provided by the 31 GHz traffic management systems that it seeks to uproot.

### **PUBLIC INTEREST CONSIDERATIONS**

It is well established that the Commission's frequency allocation decisions must serve the public interest. See 47 U.S.C. § 303(c). As noted above, traffic signal control systems operating on 31 GHz frequencies alleviate traffic congestion, reduce fuel consumption levels and minimize vehicle emissions. While these are all important public benefits, the reduction of vehicle emissions and the corresponding decline in air pollution should be assigned particularly heavy weight in the Commission's public interest calculations. This is because the National Environmental Policy Act ("NEPA") explicitly directs the Commission to consider the potential impact upon the environment of its proposed actions. See 42 U.S.C. §§ 4321-4335; 40 C.F.R. §§ 1500-1508; 47 C.F.R. §§ 1.1301-1.1319.

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<sup>2</sup>Sierra Digital Communications, Inc. ("Sierra") - a leading supplier of fixed service point to point 31 GHz microwave radio links explains in its Comments that there are considerable costs associated with the transition of 31 GHz licensees to the 23 GHz band. Comments of Sierra at 12-13.

<sup>3</sup>See Fourth Notice of Proposed Rule Making ("Fourth NPRM") at 102; Comments of the Wireless Cable Association International, Inc., at 3; Comments of Rio Vision, Inc. at 2; Comments of Hughes Communications Galaxy, Inc. at 2; Comments at Texas Instruments, Inc. at 8-9.

<sup>4</sup>Comments of Sierra at 6-7; Comments of the City of Topeka at ¶ 2.

Congress has recognized that traffic management systems such as that operated by the Nevada DOT may play an important role the efforts of highly populated regions to combat air pollution. In enacting the Clean Air Act of 1955, Congress concluding that "the growth in the amount and complexity of air pollution brought about by ...the increasing use of motor vehicles, has resulted in mounting dangers to the public health and welfare." 42 U.S.C. § 7401. Accordingly, Congress identified "traffic flow improvement programs that achieve emission reductions" as a potential method of improving air quality in urban areas 42 U.S.C. §§ 7408(f)(1)(A)(v).

The introduction of harmful interference to traffic management operations, or their displacement altogether from the 31 GHz band, would be particularly detrimental to areas such as Las Vegas that do not currently meet all applicable air quality standards. Indeed, the Environmental Protection Agency has designated Las Vegas a "moderate nonattainment" area for carbon monoxide and a "serious nonattainment" area for PM-10.<sup>5</sup> 40 C.F.R. § 81.329. Las Vegas also fails to meet primary standards for TSP (total suspended particulate). *Id.* The Commission's proposed reallocation of the 31 GHz band to LMDS threatens to undermine the efforts of the Nevada DOT and Barton-Aschman to design and deploy a traffic management system that best tailored to address the area's pollution problems.

While the Commission may have been unaware of the potential public detriment of its 31 GHz reallocation proposal when it adopted the Fourth NPRM, it simply cannot ignore the vital concerns that have been brought before it since that time.<sup>6</sup> To alleviate these concerns, the Commission should seek to ensure that its proposal will not impede the ability of public agencies such as the Nevada DOT to reduce traffic congestion and improve air quality through the operation of traffic signal control facilities. As discussed below, band-sharing may present a workable solution. If, however, the Commission is unwilling to withhold final action on the Fourth NPRM until band-sharing negotiations are completed, it should either: (1) designate alternative spectrum for LMDS; (2) divide the 31 GHz band, some parties have suggested, into two separate spectrum blocks so that LMDS and existing allocations will each have protection from interference at certain frequencies; or (3) fully compensate entities that have invested in 31 GHz systems for the costs associated with relocation to an alternative frequency band, public interest, surely demands no less.

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<sup>5</sup>"PM 10" is the national ambient air quality standard for particulate matter, measured as particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers.

<sup>6</sup>See Comments of the City of Long Beach; Comments of the City of San Diego; Comments of the City of Topeka; Comments of the City and County of Honolulu; Comments of Sierra; Comments of Sunnyvale GDI, Inc.; Comments of the Mobile Source Air Pollution Reduction Review Committee of the South Coast Air District of the State of California; Reply Comments of the International Municipal Signal Association.

## POSSIBILITIES FOR CO-EXISTENCE

Several parties expressed optimism in their Comments regarding the possibility that LMDS and traffic management control operations may be able to co-exist in the 31 GHz band.<sup>7</sup> The Nevada DOT also is willing to consider such an approach, and it intends to enter negotiations toward that end in the immediate future. With reasonable coordination efforts, a mutually acceptable solution may well be feasible. The Commission should not rely at this time, however, on potential private band-sharing arrangements as a substitute for its clear obligation to allocate spectrum in a manner that promotes the public interest.

## CONCLUSION

The citizens of Las Vegas have a significant stake in the full deployment of their new traffic management system. Microwave links operating in the 31 GHz band comprise an essential part of this system. Numerous other regions throughout the Country also rely upon 31 GHz traffic signal control system to reduce congestion and improve air quality. Accordingly, the Nevada DOT and Barton-Aschman implore the Commission to consider the public value of such systems before it expels them from the 31 GHz band without recourse or subjects them to harmful interference.

Respectfully submitted



Thomas E. Stephens, P.E.

Director

The Department of Transportation  
State of Nevada



G. Curtis Herrick

Senior Associate

Barton-Aschman Associates, Inc.

cc: Michele C. Farquhar, Chief  
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Private Wireless Division  
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<sup>7</sup>See Comments of the City of Topeka at ¶ 2; Comments of Sierra at 15; Comments of the Hewlett-Packard Company at 3.